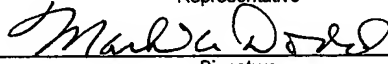


IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 10/649,547
Applicant(s): Hitoshi HAGIMORI, Genta YAGYU and
Kazuhiko ISHIMARU
For: ZOOM LENS DEVICE
Confirmation No.: 5431
Customer No.: 24367
Docket No.: 15162/06120
Filed: August 25, 2003
Group Art Unit: 2873
Examiner: Jack Dinh

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on	
October 14, 2005	_____
Date of Deposit	_____
Mark A. Dodd	_____
Name of Applicant, Assignee, or Registered Representative	_____
	_____
Signature	_____
October 14, 2005	_____
Date of Signature	_____

AMENDMENT

This Amendment is filed in response to the Office Action dated May 18, 2005, which provides for a response period ending August 18, 2005.

A Petition for Extension of Time, to extend the response period for the Office Action, for two additional months to October 18, 2005, is being filed concurrently.

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks begin on page 7 of this paper.



AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Previously Presented) A zoom lens device comprising:
a zoom lens system having a plurality of lens units; and
an image sensor converting an optical image formed by the zoom lens system, into electric image data,

wherein lens surfaces constituting the zoom lens system are all refracting surfaces,
wherein zooming is performed by varying the distances between the lens units, and
wherein following conditions are satisfied:

$$3.1 \leq f_t/f_w \leq 5.5$$

where f_w is the focal length of the zoom lens system in the shortest focal length condition, and f_t is the focal length of the zoom lens system in the longest focal length condition.

2. (Currently Amended) A zoom lens ~~system~~device as claimed in claim 1,
wherein the plurality of lens units includes, from an object side:

a first lens unit;

a second lens unit; and

a third lens unit;

wherein the zoom lens systems of the embodiments satisfy the following condition:

$$0.1 < T_{23w}/f_w < 1.5$$

where T_{23w} is ~~[[the]]~~an axial distance between the second lens unit ~~(most image side)~~ and ~~the adjoining the third lens unit on the image side (most object side)~~ in the shortest focal length condition, and f_w is the focal length of the zoom lens system in the shortest focal length condition.

3. (Currently Amended) A zoom lens ~~system~~device as claimed in claim 1, wherein the zoom lens systems of the embodiments satisfy the following condition:

$$0.6 < T_{\text{sum}}/f_w < 2.6$$

where T_{sum} is the sum of the axial thicknesses of all the lens elements included in the zoom lens system; and f_w is the focal length of the zoom lens system in the shortest focal length condition.

4. (Currently Amended) A zoom lens ~~system~~device as claimed in claim 1, wherein the plurality of lens units includes a first lens unit consisting of a single negative lens element at a most object side of the plurality of lens units; and wherein ~~the zoom lens systems of the embodiments satisfy the following condition:~~

$$v_1 > 45$$

where v_1 is the Abbe number of the single negative lens element ~~constituting~~of the first lens unit.

5. (Currently Amended) A zoom lens device as claimed in claim 1, wherein the plurality of lens units includes a first lens unit at a most object side of the plurality of lens units and wherein the first lens unit moves so as to draw a locus of a U-turn convex to the image side in zooming from the shortest focal length condition to the longest focal length condition.

6. (Currently Amended) A zoom lens device as claimed in claim 1, wherein the plurality of lens units includes a first lens unit at a most object side of the plurality of lens units and wherein the first lens unit includes at least one aspherical surface.

7. (Original) A zoom lens device as claimed in claim 1, wherein the focusing is performed by moving along the optical axis either a positive lens unit or a single lens element disposed in a position on the image side of a diaphragm and not included in the most image side lens unit.

8. (Currently Amended) A zoom lens device as claimed in claim 1, wherein the zoom lens system consists of, from the object side:

[[the]]a first lens unit;
[[the]]a second lens unit; and
a third lens unit having a positive optical power.

9. (Currently Amended) A zoom lens device as claimed in claim 1, wherein the zoom lens system consists of, from the object side:

[[the]]a first lens unit;
[[the]]a second lens unit;
a third lens unit having a positive optical power; and
a fourth lens unit having a positive optical power.

10. (Previously Presented) A digital camera comprising:
a zoom lens device including a zoom lens system and an image sensor;
the image sensor converting an optical image formed by the zoom lens system, into electric image data,

the zoom lens system having a plurality of lens units including a first lens unit disposed on the most object side and consisting of a single negative lens element; and
wherein lens surfaces constituting the zoom lens system are all refracting surfaces, wherein zooming is performed by varying the distances between the lens units, and wherein following conditions are satisfied:

$$3.1 \leq f_t/f_w \leq 5.5$$

where f_w is the focal length of the zoom lens system in the shortest focal length condition, and f_t is the focal length of the zoom lens system in the longest focal length condition.

11. (New) A zoom lens system comprising, from an object side:
a first lens unit;
a second lens unit; and

a third lens unit,

wherein the following condition is satisfied:

$$3.1 \leq f_t/f_w \leq 5.5$$

where f_w is the focal length of the zoom lens system in the shortest focal length condition, and f_t is the focal length of the zoom lens system in the longest focal length condition.

12. (New) A zoom lens system as claimed in claim 11, wherein the following condition is satisfied:

$$0.1 < T_{23w}/f_w < 1.5$$

where T_{23w} is an axial distance between a most image side of the second lens unit and a most object side of the third lens unit in the shortest focal length condition.

13. (New) A zoom lens system as claimed in claim 11, wherein the following condition is satisfied:

$$0.6 < T_{\text{sum}}/f_w < 2.6$$

where T_{sum} is the sum of the axial thicknesses of all lens elements in the zoom lens system.

14. (New) A zoom lens system as claimed in claim 11,
wherein the first lens unit consists of a single negative lens element, and
wherein the following condition is satisfied:

$$v_1 > 45$$

where v_1 is the Abbe number of the single negative lens element.

15. (New) A zoom lens system as claimed in claim 11, wherein the first lens unit moves so as to draw a locus of a U-turn convex to the image side in zooming from the shortest focal length condition to the longest focal length condition.

16. (New) A zoom lens system as claimed in claim 11, wherein the first lens unit includes at least one aspherical surface.

17. (New) A zoom lens system as claimed in claim 11 further comprising:
a diaphragm,

wherein focusing is performed by moving, along an optical axis, one of a positive lens unit or a single lens element, the positive lens unit or single lens element being located on the image side of the diaphragm and not included in a most image side lens unit.

18. (New) A zoom lens system as claimed in claim 11, wherein the third lens unit has a positive optical power.

19. (New) A zoom lens system as claimed in claim 18 further comprising:
a fourth lens unit having a positive optical power.

REMARKS

Claims 1-10 were pending in the Application. By this Amendment, new claims 11-19 are added. The status of the claims is as follows:

Claims 8 and 9 are object to because of informalities.

Claims 2 and 4-6, are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as the invention.

Claims 1, 3, 7, and 10 are allowed.

Claims 2 and 4-6 are objected to, but would allowable if rewritten to overcome the rejection under 35 U.S.C. § 112, second paragraph, as set forth in this Office Action, and to include all of the limitations of the base claim and any intervening claims.

Claims 8 and 9 would be allowable if rewritten to overcome the objections set forth in this Office Action.

Claims 2, 4-6, 8, and 9 have been amended to overcome the 35 U.S.C. § 112, second paragraph rejections and objections. In particular, claims 2 and 4-6 have been amended to more distinctly claim the relative positions of the various lens units. Claims 3, 8 and 9 have been amended to correct antecedent basis errors. These changes do not introduce any new matter.

New Claims

New claims 11-19 are directed to the zoom lens system disclosed in the Application. Support for claim 11 is found in previously amended paragraph [0030]. Support for claim 12 is found in paragraph [0032]. Support for claim 13 is found in paragraph [0034]. Support for claim 14 is found in paragraph [0038]. Support for

Application No. 10/649,537
Amendment dated October 14, 2005
Reply to Office Action of May 18, 2005

claim 15 is found in paragraph [0024]. Support for claim 16 is found in paragraph [0041]. Support for claim 17 is found in paragraph [0043]. Support for claims 18 and 19 is found in paragraphs [0024] – [0027], in which the third and fourth lens units are disclosed as having a construction that inherently provides positive optical power. Thus, new claims 11-19 do not introduce any new matter.

35 U.S.C. § 112 Rejection

The rejection of claims 2 and 4-6 under the second paragraph of 35 U.S.C. § 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention, is respectfully traversed based on the following.

Claims 2 and 4-6 have been amended to more distinctly claim the relative positions of the various lens units within the zoom lens system.

Accordingly, it is respectfully requested that the rejection of claims 2 and 4-6 under the second paragraph of 35 U.S.C. § 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention, be reconsidered and withdrawn.

CONCLUSION

In view of the foregoing, this application is considered to be in condition for allowance, and an early reconsideration and a Notice of Allowance are respectfully requested.

This Amendment increases the number of independent claims by one from 2 to 3 (3 claims previously paid for) and increases the total number of claims by 9 from 10 to 19 (20 claims previously paid for), but does not present any multiple dependency claims. Accordingly, no fee based on the number or type of claims is currently due. If an extension of time is required to enable this document to be timely filed and there is no

Application No. 10/649,537
Amendment dated October 14, 2005
Reply to Office Action of May 18, 2005

separate Petition for Extension of Time filed herewith, this document is to be construed as also constituting a Petition for Extension of Time Under 37 C.F.R. § 1.136(a) for a period of time sufficient to enable this document to be timely filed. Any fee required for such a Petition for Extension of Time or any other fee required by this response, including any fee pursuant to 37 C.F.R. §§ 1.16 and 1.17, other than the issue fee, and not submitted herewith should be charged to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260. Any refund should be credited to the same account.

Respectfully submitted,

By: Mark A. Dodd
Mark A. Dodd
Registration No. 45,729
Attorney for Applicants

MAD/llb:bar
SIDLEY AUSTIN BROWN & WOOD LLP
717 N. Harwood, Suite 3400
Dallas, Texas 75201
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Main: (214) 981-3300
Facsimile: (214) 981-3400
October 14, 2005

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 10/649,547
Applicant(s): Hitoshi HAGIMORI, Genta YAGYU and
Kazuhiko ISHIMARU
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Customer No.: 24367
Docket No.: 15162/06120
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Group Art Unit: 2873
Examiner: Jack Dinh

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

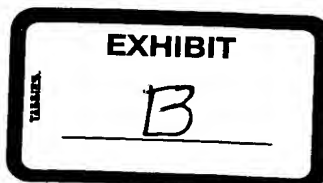
I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on	
October 14, 2005	Date of Deposit
Mark A. Dodd	Name of Applicant, Assignee, or Registered Representative
	Signature
October 14, 2005	Date of Signature

PETITION FOR EXTENSION OF TIME

Applicants hereby petition that the period for response to the Office Action, dated May 18, 2005, be extended for two months to October 18, 2005.

A response to the Office Action, dated May 18, 2005, is filed concurrently herewith.

A Response Transmittal and Fee Authorization for the two month extension fee under 37 C.F.R. § 1.17(a) is submitted herewith. In the event that the Response



Application No. 10/649,537
Petition for Extension of Time dated October 14, 2005
Reply to Office Action of May 18, 2005

Transmittal and Fee Authorization is not present, is not sufficient, or is not acceptable,
please charge any fee (other than issue fee) required during the pendency of this U.S.
patent application to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260.

Respectfully submitted,

By: Mark A. Dodd
Mark A. Dodd
Registration No. 45,729
Attorney for Applicants

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October 14, 2005

RESPONSE TRANSMITTAL AND FEE AUTHORIZATION

ATTORNEY DOCKET NO. 15162/06120		APPLICATION NO. 10/649,547	
FILING DATE AUGUST 25, 2003	CONFIRMATION NO. 5431	CUSTOMER NO. 24367	EXAMINER JACK DINH
APPLICANT(S): HITOSHI HAGIMORI, GENTA YAGYU AND KAZUHIKO ISHIMARU		GROUP ART UNIT 2873	
TITLE OF INVENTION: ZOOM LENS DEVICE			

COMMISSIONER FOR PATENTS
P.O. BOX 1450
ALEXANDRIA, VA 22313-1450

TRANSMITTED HERewith FOR THE ABOVE IDENTIFIED
PATENT APPLICATION IS:

- ☒ (A) A response to the Office Action dated: May 18, 2005
- ☒ (B) A Petition for Extension of Time
☐ for 1 month ☒ for 2 months ☐ for 3 months;
 A Petition for Extension of Time, having been previously filed,
☐ for 1 month ☐ for 2 months ☐ for 3 months
- ☐ (C) A Notice of Appeal. \$
- ☐ (D) An Appellant's Brief on Appeal. \$
- ☐ (E) Other: \$
- ☐ (F) A verified statement to establish small entity status under 37 CFR §§ 1.9 and 1.27
☐ Small entity status under 37 CFR § 1.27 has been previously established
☐ The claims fee, if any, has been calculated as shown below

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October 14, 2005

Date of Deposit

Mark A. Dodd

Name of Applicant, Assignee, or Registered Representative

Mark A. Dodd
Signature

October 14, 2005

Date of Signature

	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NO. PREVIOUSLY PAID FOR	PRESENT EXTRA
TOTAL		MINUS		
INDEP.		MINUS		
FIRST PRESENTATION OF MULTIPLE DEP. CLAIM				

SMALL ENTITY

RATE	ADD'L FEE
x \$25	\$
x \$100	
+ \$180	
TOTAL ADD'L FEE	\$ 0.00

LARGE ENTITY

RATE	ADD'L FEE
x \$50	\$
x \$200	
+ \$360	
TOTAL ADD'L FEE	\$ 0.00

OR

- ☒ Please charge \$450.00 to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260, which includes
☐ the amount of \$ for the claims fee calculated above AND/OR
☒ the amount of \$450.00 for the fee for item(s) ☒ (B) ☐ (C) ☐ (D) ☐ (E) ☐ (F)
- ☒ Please charge any additional fees (other than issue fee) required during the pendency of this application to Deposit Account No. 18-1260. Please credit any overpayment to Deposit Account No. 18-1260.
- ☒ A duplicate copy of this Response Transmittal and Fee Authorization is enclosed.

October 14, 2005
SIDLEY AUSTIN BROWN & WOOD LLP
717 N. Harwood, Suite 3400
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By: *Mark A. Dodd*

Mark A. Dodd
Attorney for Applicants
Registration No. 45,729

EXHIBIT

C

ATTORNEY: MAD

PAPER: AMENDMENT (10 pp.) (via First Class Mail)

Applicant(s): Hitoshi HAGIMORI, Genta YAGYU and
Kazuhiko ISHIMARU

Confirmation No. 5431

Customer No. 24327

Application No. 10/649,547

Client: 15162 Matter: 06120

Due: 10/18/05 Mailed: 10/14/05

Title: ZOOM LENS DEVICE

Deposit Account
Authorization:
\$

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United States
Patent Office on



ATTORNEY: MAD

PAPER: PETITION FOR EXTENSION OF TIME
(2 pp.) (via First Class Mail)

Applicant(s): Hitoshi HAGIMORI, Genta YAGYU
and
Kazuhiko ISHIMARU

Confirmation No. 5431

Customer No. 24327

Application No. 10/649,547

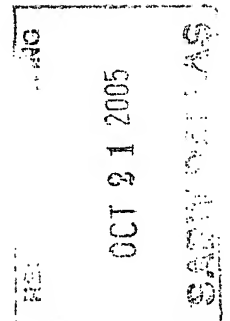
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Due: 10/18/05 Mailed: 10/14/05

Title: ZOOM LENS DEVICE

Deposit
Account
Authorization:
\$450.00

Filed in the
United States
Patent Office on



ATTORNEY: MAD

**PAPER: RESPONSE TRANSMITTAL AND FEE
AUTHORIZATION (10 pp.) (via First Class Mail)**

**Applicant(s): Hitoshi HAGIMORI, Genta YAGYU and
Kazuhiko ISHIMARU**

Confirmation No. 5431

Customer No. 24327

Application No. 10/649,547

Client: 15162 Matter: 06120

Due: 10/18/05 Mailed: 10/14/05

Title: ZOOM LENS DEVICE

**Deposit Account
Authorization:
\$450.00**

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United States
Patent Office on**

